

## THE CAREX LURIDA GROUP (CYPERACEAE) IN THE NEOTROPICS

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The *Carex lurida* Wahlenb. group (sect. *Vesicariae* J. Carey, including sect. *Pseudo-cypereae* Kük.) is restricted to the New World and comprises six known species. Five occur in the neotropics, and one, *C. baileyi* Britton, is restricted to the Appalachian region from New England and New York south to Tennessee and North Carolina. *Carex lurida* is widespread in eastern North America, and scattered in distribution in the neotropics, and the other four species are local endemics.

The *Carex lurida* group is characterized by conspicuously awned pistillate and staminate scales, perigynia with few (4–12) and often faint nerves, and inflated, more or less globular to broadly flattened-ellipsoid bodies. Other similar species in the section have either the staminate or pistillate scales or both awnless, perigynia with many (15–25 or more) and often conspicuous nerves, and often uninflated bodies. In the *C. lurida* group, the beaks are relatively prominent (1.3–5.9 mm long), often equalling or exceeding the length of the body, but with inconspicuous apical teeth only 0.1–0.8 mm long. Other similar species of sect. *Vesicariae* have either shorter beaks or beaks with proportionately longer teeth or both. Also characteristic of the group are papillose achenes (see Walter 1975), although this feature does occur in a few other species in the section.

Eight other members of sect. *Vesicariae* occur in the neotropics and adjacent parts of Mexico. *Carex polysticha* Boeckl. sensu lato, a highly variable species much in need of systematic work, ranges from the Caribbean and southern Mexico to temperate South America. The very similar North American *C. comosa* Boott, unique in having long (1.3–2.8 mm), outcurved beak teeth, also occurs in central Mexico. These two species differ from the *Carex lurida* group in their uninflated, many-nerved perigynia. *Carex acutata* Boott, from the northern Andes, and *C. purpureovaginata* Boeckl. from eastern Brazil have awnless or very short-awned pistillate scales, as well as uninflated perigynia. In central and northern Mexico, *Carex hystericina* Willd., *C. mcvaughii* Reznicek, and *C. thurberi* Dewey occur locally. These three species differ from the *Carex lurida* group in having prominently 15–25-nerved perigynia with proportionately shorter beaks. Finally, *C. utriculata* Boott, with awnless pistillate scales and strongly inflated perigynia, barely enters Mexico from the north in Baja California.

In this treatment, *Carex rzedowskii* and *C. durangensis* are described from Mexico, *C. setigluma* from Ecuador and Colombia, and *C. luridiformis* from Colombia. The presence of *C. lurida* in South America is confirmed, and a key to this group of species is provided.



KEY TO THE SPECIES OF THE *CAREX LURIDA* GROUP

1. Pistillate spikes (12-) 14-22 mm wide (if spikes less than 14 mm wide, then usually less than 2.5 times as long as wide); perigynia (6-) 6.5-10.8 mm long. *C. lurida*.
1. Pistillate spikes 8-14 (-15) mm wide (if spikes more than 12 mm wide, then usually 2.5-4 times as long as wide); perigynia 3.7-6.7 (-7.6) mm long.
  2. Achenes (0.8-) 1-1.4 mm wide, with obovate to rhombic-ovate sides; leaves 2-4 (-5) mm wide (except in *C. durangensis*).
    3. Leaves 5-9 mm wide; ligule 12-21 mm long; staminate spikes 3-4 mm wide; staminate scales 1.4-2 mm wide. *C. durangensis*.
    3. Leaves 2-4 (-5) mm wide; ligule 2-8 mm long; staminate spikes 1.3-2.7 mm wide; staminate scales 0.7-1.5 mm wide.
      4. Pistillate scales 0.3-0.9 mm wide; perigynium beak 2.2-4 mm long, 0.7-1.3 times as long as the body. *C. baileyi*.
      4. Pistillate scales 1.1-2 mm wide, perigynium beak 1.3-2.3 mm long, 0.5-0.8 times as long as the body. *C. rzedowskii*.
  2. Achenes 0.6-0.9 mm wide, with narrowly elliptic sides; leaves (3.2-) 5-9.5 mm wide.
    5. Pistillate spikes 8-10 mm wide, mostly 4-6 times as long as wide; pistillate scale bodies 1.1-1.7 mm long, 0.4-1.1 mm wide; perigynia 4.2-5.2 mm long; achenes deeply constricted at the middle on one side. *C. setigluma*.
    5. Pistillate spikes 11-13 mm wide, mostly 2.5-4 times as long as wide; pistillate scale bodies 2.5-3.6 mm long, 1-1.8 mm wide; perigynia (4.9-) 5.3-6.7 mm long; achenes slightly constricted at the middle on one side. *C. luridiformis*.

***Carex rzedowskii*** Reznicek & S. González, sp. nov.—TYPE: MEXICO. Michoacán: alrededores de Loma Caliente, próxima a Umécuaro, Mpio. Morelia, 27 Nov 1991, *Rzedowski 51352* (holotype: IEB; isotypes: CIIDIR, MICH, and others to be distributed). Fig. 1.

Plantae cespitosae; culmi fertiles 12-45 cm alti, vaginis basalibus purpureis, glabris. Folia 2-6, laminae 5-30 cm longae, 2-3.4 (-4) mm latae, folia superiora culmo longiora; vaginae glabrae, ventraliter albae vel pallido-brunneae; ligulae 2-3.7 mm longae. Inflorescentiae 2.2-5.5 cm longae; spicae erectae 2-5; bractae infimae laminae 9-20 cm longis, 1.7-3.2 mm latis; spica terminalis omnino staminata, 0.9-1.6 cm longa, 1.3-2.4 mm lata, pedunculo 1-5 mm longo; spicae laterales 1-4, omnino pistillatae, 1-1.8 cm longae, 8-10 mm latae, floribus 20-50 dense imbricatis. Squamae pistillatae corporibus (1.9-) 2.3-3.7 mm longis, 1.1-2 mm latis, acutis, aristatae, aristis 0.6-2.8 mm longis. Perigynia 3.7-4.9 (-5.4) mm longa, 1.5-2.2 mm lata, inflata, glabra, corporibus biconvexis vel suborbiculatis, in rostrum 1.3-2.3 mm longum contracta. Achenia ca 1.9-2.2 mm longa, (1-) 1.1-1.2 mm lata, trigona. Styli persistentes; stigmata 3. Antherae 3, ca 1.3-2 mm longae.

Cespitose from short-creeping rhizomes up to 4 mm wide; fertile culms 12-45 cm tall, erect, exceeded by the leaves, trigonous with somewhat concave sides, prominently angled, smooth, 0.8-1.3 mm wide (below the inflorescence); bladeless basal sheaths purple, fibrillous with age. Leaves 2-6, mostly on the lower 2/3 of the culm; blades 5-30 cm long, 2-3.4 (-4) mm wide, flat, the margins and midrib antrorsely scabrous distally; leaf sheaths glabrous, very slightly septate-nodulose dorsally, whitish or pale brown, somewhat hyaline at the upper part ventrally, sometimes purple-spotted along the inner band, thin and easily ruptured at the apex; ligules 2-3.7 mm long, rounded to acute, the free portion whitish, 0.2-0.4 mm wide. Inflorescences 2.2-5.5 cm long, up to 2.2 cm wide, with 2-5 spikes, the terminal staminate (rarely absent), the lateral 1-4 pistillate; pistillate spikes approximate or the lower separate, erect, nearly sessile or the lowermost on a peduncle up to 2 cm long; lowermost 1-3 bracts foliaceous, 9-20 cm long, 1.7-3.2 mm wide, antrorsely scabrous along the margin and distally also



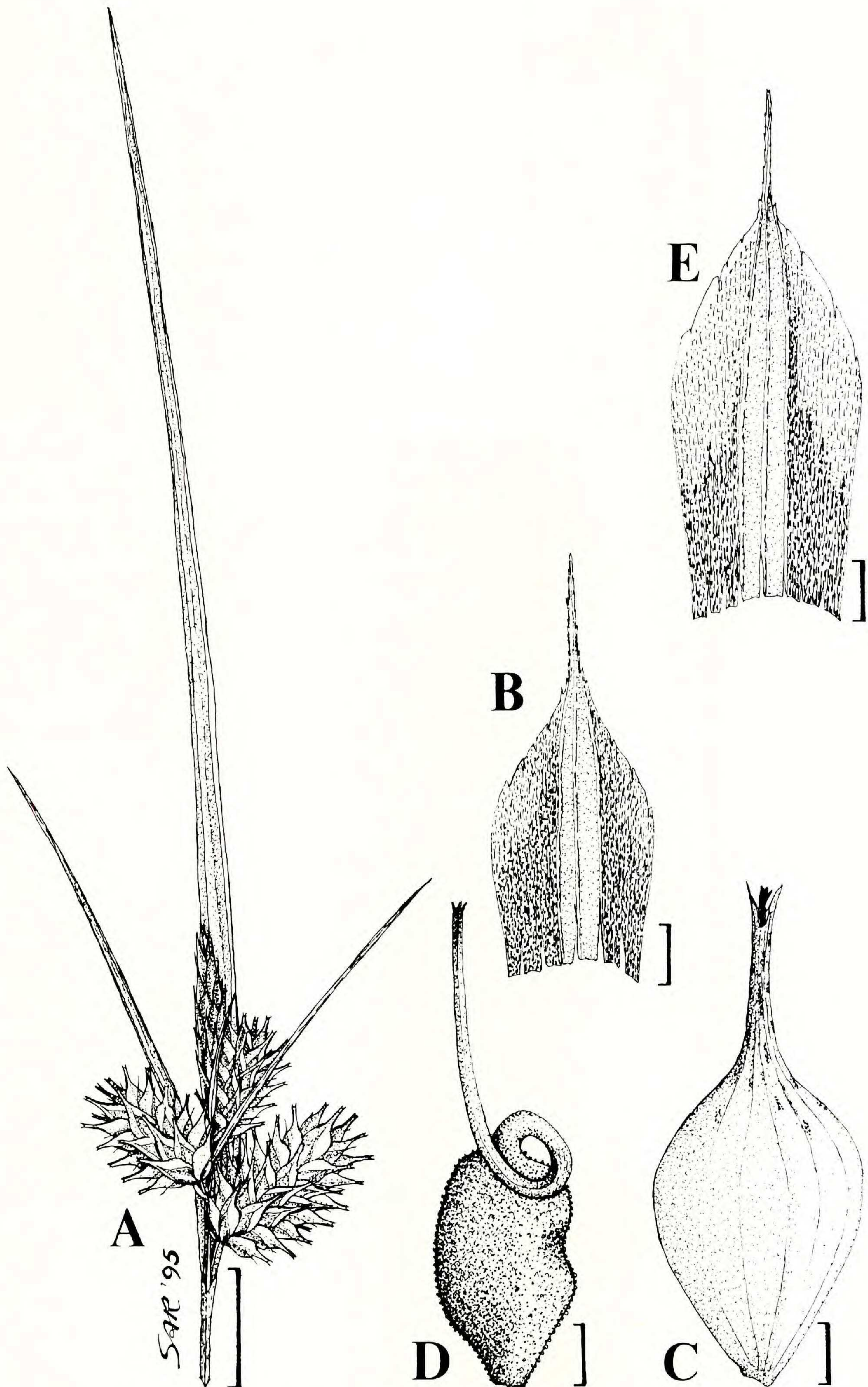


FIG. 1. *Carex rzedowskii*. A. Inflorescence. B. Pistillate scale. C. Perigynium. D. Achene. E. Staminate scale. (Scale: A, bar = 1 cm; B–E, bar = 0.5 mm.) Drawn by Susan A. Reznicek from *Rzedowski 46978* (IEB).



along the midvein, sheathless or with a very short sheath up to 12 mm long, the upper bracts setaceous, reduced. Staminate spike 0.9–1.6 cm long, 1.3–2.4 mm wide, slender, nearly linear, on a very short, smooth peduncle 1–5 mm long. Pistillate spikes 1–1.8 cm long, 8–10 mm wide, short-cylindric, densely flowered with about 20–50 ascending-spreading to spreading perigynia in several to many rows. Staminate scales up to 4.2–7.2 mm long, the body 2.8–5.2 mm long, 0.9–1.5 mm wide, lanceolate to oblanceolate, stramineous to purple with a paler, 3-nerved center, the midrib prolonged into a rough awn 0.4–2.4 mm long, the awn 0.1–0.6 times as long as the body. Pistillate scales 3.2–6.4 mm long, the body (1.9–) 2.3–3.7 mm long, 1.1–2 mm wide, ovate to oblong, pale brown or purple-red-tinged with a 3-nerved center and hyaline margins, acute, the midrib prolonged into a rough awn 0.6–2.8 mm long, the awn 0.4–1.3 times as long as the body, the body of scales covering at least  $\frac{2}{3}$  of the length of the body of perigynia. Perigynia 3.7–4.9 (–5.4) mm long, 1.5–2.2 mm wide, inflated, biconvex to suborbicular in cross section, cellular-membranaceous, glabrous, stramineous and purple-dotted or pale brown, somewhat shiny, very faintly 4–12-nerved, sessile or short-pedicellate, contracted into a beak; beaks 1.3–2.3 mm long, ca 0.5–0.8 times as long as the body, smooth, cylindrical, slender, stramineous, pale brown or pale green, bidentate at the apex with slender, stiff, erect teeth up to 0.7 mm long. Achenes 1.9–2.2 mm long, (1–) 1.1–1.2 mm wide, trigonous with convex sides above, at maturity slightly or clearly constricted at the middle on one side, obovate, papillose, yellowish brown and somewhat iridescent, stipitate, at the apex tapering and continuous into the persistent, contorted style; stigmas 3. Anthers 3, 1.3–2 mm long.

Known only from two collections from the type locality in Michoacán at 2200 m, in a marshy meadow in the bottom of a valley (Fig. 6). Fruiting is from August to November.

ADDITIONAL SPECIMENS EXAMINED. **Mexico.** MICHUACÁN: Mpio. Morelia, 2 km al S de Umécuaro, *Rzedowski* 46978 (IEB, MICH).

The epithet "*rzedowskii*" honors the collector and eminent botanist, Dr. Jerzy Rzedowski. The closest relative of *Carex rzedowskii* seems to be the South American *C. luridiformis*. In *North American Flora* (Mackenzie 1935), *C. rzedowskii* keys to *C. baileyi* because of its narrow pistillate spikes and perigynia abruptly contracted into the beak. Also, both species have cellular-membranaceous perigynia and share similar achene, leaf, and ligule measurements. However, in addition to the features noted in the key, *C. baileyi* has pistillate scales with the bodies mostly truncate at the apex, perigynia 4.8–6.6 (–7.6) mm long, and angles of the achene costullate.

***Carex durangensis*** Reznicek & S. González, sp. nov.—TYPE: MEXICO. Durango: 7 mi SW of El Salto, 11 Jul 1970, *Fitzner* 262 (holotype: MSC). Fig. 2.

Plantae cespitosae, rhizoma lignosum; culmi fertiles ca 35–50 cm alti; vaginis basales brunneis vel purpureis, glabris. Folia 4–7, laminae 5–25 cm longae, 5–9 mm latae; vaginae glabrae, ventraliter albidae vel pallido-brunneae; ligulae 12–21 mm longae. Inflorescentiae 7–11 cm longae, spicae erectae 3–4; bracteae infimae laminis 13–21 cm longis, 6.6–7 mm latis; spica terminalis omnino staminata, 3.8–4.8 cm longa, 3–4 mm lata, pedunculo 5–8 mm longo; spicae laterales 2–3, omnino pistillatae, 2.9–4.3 cm longae, 9–10.5 mm latae; floribus 170–300 dense imbricatis. Squamae pistillatae corporibus 1.7–2.5 mm longis, 1.2–1.6 mm latis, truncatis vel



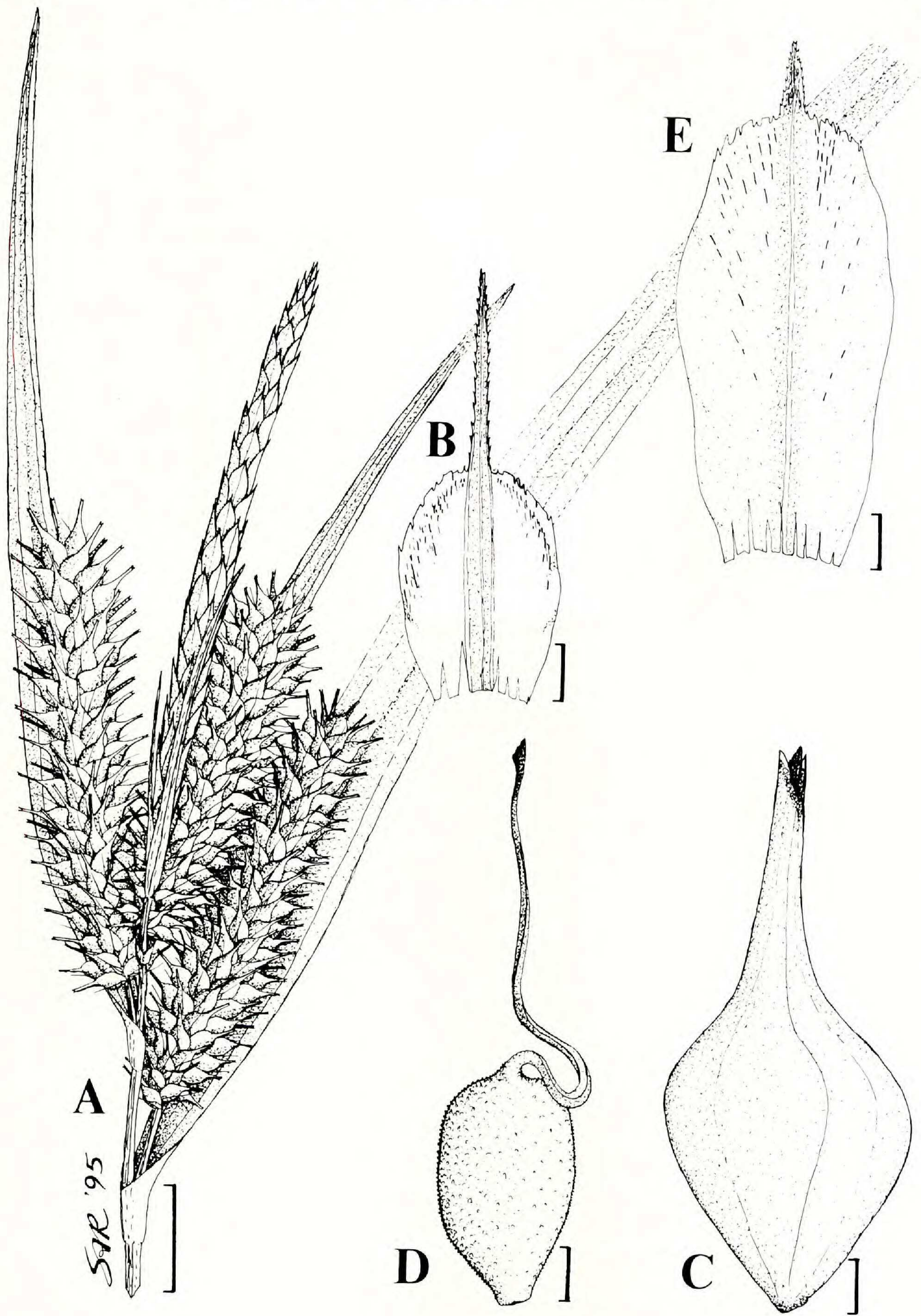


FIG. 2. *Carex durangensis*. A. Inflorescence. B. Pistillate scale. C. Perigynium. D. Achene. E. Staminate scale. (Scale: A, bar = 1 cm; B–E, bar = 0.5 mm.) Drawn by Susan A. Reznicek from Fitzner 262 (MSC).

acutis, aristatae, aristis 1.1–5.5 mm longis. Perigynia ca 4.5–5.5 mm longa, 1.9–2.2 mm lata, inflata, glabra, corporibus biconvexis vel suborbiculatis in rostrum 1.7–2.3 mm longum contracta. Achenia ca 2.1–2.4 mm longa, 1.1–1.4 mm lata, trigona. Styli persistentes; stigmata 3. Antherae 3, ca 1.6–2.3 mm longae.



Cespitose from stout, woody rhizomes up to 6 mm wide; fertile culms ca 35–50 cm tall, erect, trigonous, prominently angled, smooth or very slightly scabrous, 1.5–1.8 mm wide immediately below the inflorescence; bladeless basal sheaths brown with purple tinging to reddish purple, somewhat fibrillous with age. Leaves 4–7, mostly on the lower 2/3 of the culm; blades 5–25 cm long, 5–9 mm wide, flat, the margins and midrib antrorsely scabrous distally; leaf sheaths glabrous, very slightly septate-nodulose dorsally, whitish or pale brown, somewhat hyaline at the upper part ventrally, thin at the apex; ligules 12–21 mm long, acute, the free portion brownish, 0.2–0.4 mm wide. Inflorescences 7–11 cm long, ca 3 cm wide, with 3–4 spikes, 1 terminal, staminate and 2–3 lateral, pistillate; pistillate spikes approximate or the lower separate, erect, nearly sessile or the lowermost on a peduncle up to 2 cm long; lowermost 1–3 bracts foliaceous, 13–21 cm long, 6.6–7 mm wide, antrorsely scabrous along the margin and midvein, sheathless or with a short sheath up to 15 mm long, the upper bracts reduced. Staminate spike 3.8–4.8 cm long, 3–4 mm wide, linear-cylindric, on a smooth peduncle 5–8 mm long. Pistillate spikes 2.9–4.3 cm long, 9–11 mm wide, cylindric, densely flowered with about 170–300 ascending-spreading perigynia in several to many rows. Staminate scales 4.3–5.8 (–9.4) mm long, the body 4.1–5 mm long, 1.4–2 mm wide, obovate to oblanceolate, brownish to purple with a green, 3-nerved center, acute or the midrib prolonged into a rough awn 0.2–0.8 (–4.6) mm long, the awn 0.05–0.2 times as long as the body. Pistillate scales 2.8–7 mm long, the body 1.7–2.5 mm long, 1.2–1.6 mm wide, ovate to oblong, whitish or purple-red tinged with a green, 3-nerved center, truncate to acute, the midrib prolonged into a rough awn 1.1–5.5 mm long, the awn 0.7–2.5 times as long as the body. Perigynia ca 4.5–5.5 mm long, 1.9–2.2 mm wide, inflated, biconvex to suborbicular in cross section, cellular-membranaceous, glabrous, greenish to pale brown, somewhat shiny, very faintly 6–10-nerved, sessile or short-pedicellate, contracted into a beak; beaks 1.7–2.3 mm long, ca 0.5–0.7 times as long as the body, smooth, cylindrical, slender, green to stramineous, obliquely cut at the apex or bidentate with erect teeth 0.1–0.5 mm long. Achenes 2.1–2.4 mm long, 1.1–1.4 mm wide, trigonous with convex sides above, obovate, papillose, whitish to yellowish brown, stipitate, at the apex tapering and continuous into the persistent, contorted style; stigmas 3. Anthers 3, ca 1.6–2.3 mm long.

Known only from the type locality in Durango at 2700 m, on the moist bank of a stream (Fig. 6). Fruiting in July, so far as known.

The short awned to sometimes awnless staminate scales make this species slightly unusual within the *Carex lurida* group. However, it has all the other distinguishing features of the group, including the inflated perigynia with few, faint nerves, relatively prominent perigynium beaks with inconspicuous apical teeth, and papillose achenes. The closest relative of *Carex durangensis* is uncertain. In perigynium and pistillate scale size and shape, it is similar to *C. rzedowskii*. However, in addition to the differences noted in the key, *C. durangensis* is a much larger plant, with thicker culms, longer pistillate and staminate spikes, and short-awned or even awnless staminate scales.

***Carex setigluma*** Reznicek & S. González, sp. nov.—TYPE: ECUADOR. Carchi: near El Pun Páramo, 1 Mar 1953, *G. W. Prescott Expedition 701* (holotype: MICH). Fig. 3.

Plantae ut videtur cespitosae; culmi fertiles ca 40–75 cm alti, vaginis basalibus purpureis, glabris. Folia 4–6, laminae ca 10–50 cm longae, (3.2–) 6–9.5 mm latae;



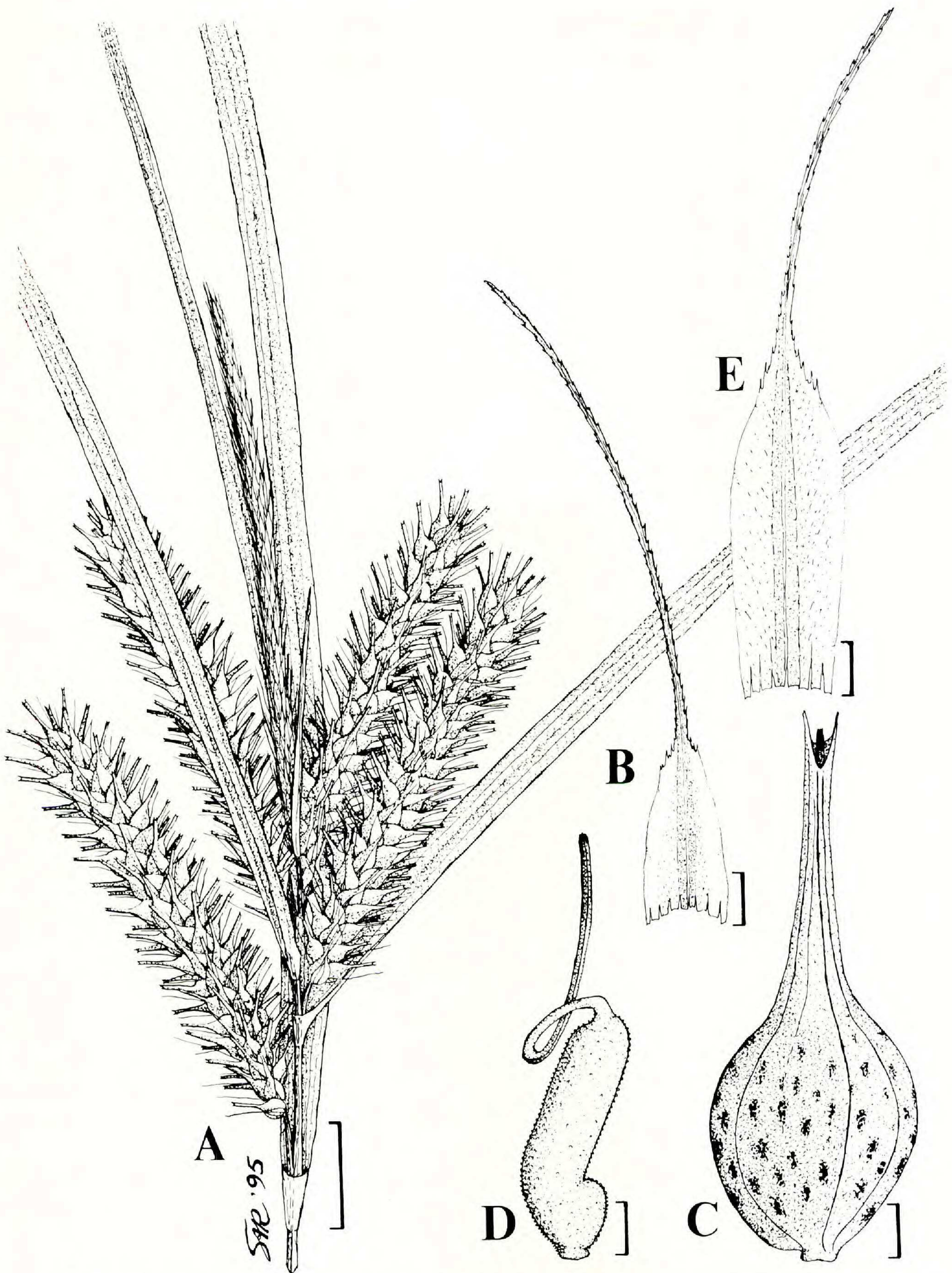


FIG. 3. *Carex setigluma*. A. Inflorescence. B. Pistillate scale. C. Perigynium. D. Achene. E. Staminate scale. (Scale: A, bar = 1 cm; B-E, bar = 0.5 mm.) Drawn by Susan A. Reznicek from Acosta Solís 7267 (F).

vaginae glabrae, ventraliter albidae vel pallido-brunneae; ligulae 8–18 mm longae. Inflorescentiae ca 7–12 cm longae; spicae erectae 4–5; bractee infimae laminis ca 11–40 cm longis, 4.6–8.6 mm latis; spica terminalis omnino staminata, 4.5–5.7 cm longa, 2–3.4 mm lata, sessilis aut in pedunculo 1–4 mm longo portata; spicae



laterales 3–4, omnino pistillatae, 3.5–5 cm longae, 8–10 mm latae, floribus 110–180 dense imbricatis. Squamae pistillatae corporibus 1.1–1.7 mm longis, 0.4–1.1 mm latis, acutis, aristatae, aristis 2.2–5.4 mm longis. Perigynia 4.2–5.2 mm longa, (1.4–) 1.8–2.2 mm lata, inflata, glabra, corporibus biconvexis vel suborbiculatis vel subtrigonis, in rostrum 1.8–2.6 mm longum contracta. Achenia ca 1.8–2.2 mm longa, 0.6–0.8 mm lata, trigona. Styli persistentes; stigmata 3. Antherae 3, ca 1.4–2.2 mm longae.

Apparently cespitose from short, woody, fibrillose rhizomes up to 5 mm wide; fertile culms ca 40–75 cm tall, erect, longer than the leaves or exceeded by 1–2 culm leaves, trigonous, smooth or slightly scabrous on the angles, 1.2–2.1 mm wide (below the inflorescence); bladeless basal sheaths purple. Leaves 4–6, mostly on the lower 2/3 of the culms; blades ca 10–50 cm long, (3.2–) 6–9.5 mm wide, flat, the margins, midrib, and adaxial surface antrorsely scabrous distally; leaf sheaths glabrous, septate-nodulose dorsally, whitish or pale brown, ± hyaline at the upper part ventrally, thin and easily ruptured at the apex; ligules 8–18 mm long, ± acute, the free portion whitish, 0.2–1 mm wide. Inflorescences ca 7–12 cm long, 3–5 cm wide, with 4–5 spikes, the terminal staminate, the lateral 3–4 pistillate; pistillate spikes approximate or the lower separate, erect, nearly sessile; lowermost 1–3 bracts foliaceous, ca 11–40 cm long and ca 4.6–8.6 mm wide, antrorsely scabrous distally along the margins, midvein, and adaxial surface, very short sheathing, the upper bracts setaceous, reduced. Staminate spike 4.5–5.7 cm long, 2–3.4 mm wide, slender, linear, sessile or on a very short, smooth peduncle 1–4 mm long. Pistillate spikes 3.5–5 cm long, 8–10 mm wide, long-cylindric, densely flowered with about 110–180 ascending-spreading perigynia in several ranks. Staminate scales 3.1–8.4 (–16.7) mm long, the body 1.9–4.4 mm long, 0.9–1.4 mm wide, lanceolate to fusiform, pale brown or reddish, the midrib prolonged into a rough awn 1.1–4.9 (–13.4) mm long, the awn ca 0.8–1.7 (–3.1) times as long as the body. Pistillate scales 3.5–6.4 mm long, the body 1.1–1.7 mm long, 0.4–1.1 mm wide, ovate to oblong, whitish hyaline to pale brown or purple-tinged, with a 1–3-nerved center and hyaline margins, acute or rarely bidentate, the midrib prolonged into a rough awn 2.2–5.4 mm long, the awn ca 1.5–3.9 times as long as the body. Perigynia 4.2–5.2 mm long, (1.4–) 1.8–2.2 mm wide, inflated, biconvex to trigonous or suborbicular in cross section, membranaceous, glabrous, pale green and purple-tinged to purplish black, somewhat shiny, faintly nerved or 4–7-nerved at the apex of the body, some of the nerves prolonged into the beak, sessile or very short-pedicellate, contracted into a beak; beaks 1.8–2.6 mm long, ca 0.6–1.1 times as long as the body of the perigynium, smooth, ± cylindrical, slender, pale green to stramineous, obliquely cut at the apex or sometimes bidentate with stiff, erect teeth 0.2–0.6 mm long. Achenes 1.8–2.2 mm long, 0.6–0.8 mm wide, obtusely trigonous with convex sides above, at maturity conspicuously constricted at the middle on one side, oblong, papillose, yellowish brown and somewhat iridescent, sessile or subsessile, at the apex continuous into the persistent, contorted style; stigmas 3. Anthers 3, ca 1.4–2.2 mm long.

Known from two collections from Ecuador and one from an adjacent area of Colombia (Fig. 6). The collections are from wet meadows at 2850 to 3500 m. Fruiting is from January to March.

ADDITIONAL SPECIMENS EXAMINED. **Colombia.** NARIÑO: road to Laguna La Cocha, ca 10 km E of Pasto, *Gentry et al.* 30414 (F, MO). **Ecuador.** CHIMBORAZO: camino de Pusucucho al Placer, Cord. Oriental, *Acosta Solís* 7267 (F).

The epithet “*setigluma*” refers to the long awns of the pistillate and staminate scales (in comparison to the narrow, short body), which give the spikes of this species a “bristly” look.



*Carex setigluma* is closely related to *C. luridiformis*; however, it differs in having longer and narrower spikes, narrower pistillate and staminate scales with shorter bodies and proportionately much longer awns, smaller perigynia with proportionately longer beaks, achenes which are deeply constricted, and septate-nodulose leaves which are scabrous distally. In both species, the degree of development of the purple-black color of the perigynia may vary considerably.

*Carex setigluma* is also quite similar to *C. baileyi* from the northeastern United States in having narrow pistillate spikes, narrow pistillate scales, and the beak of the perigynium being relatively long in relation to the body. In addition to the features noted in the key, *C. baileyi* differs in having achenes that are not constricted at the middle and with costullate angles, pistillate scale bodies mostly with truncate apices, and perigynia uniformly stramineous to olive-green and lacking any purple color.

***Carex luridiformis*** Mackenzie ex Reznicek & S. González, sp. nov.—TYPE: COLOMBIA. Cundinamarca: Río San Francisco, above Bogotá, 13 Sep 1917, *Pennell 1931* (holotype: NY, isotypes: F, GH). Fig. 4.

Rhizoma lignosum stolones emittens; culmi fertiles 20–50 cm alti, vaginis basalibus atropurpureis, glabris. Folia 3–8, laminae 9–32 cm longae, (4–) 5–9 mm latae, folia superiora culmo longiora; vaginae glabrae, ventraliter albae vel rufae; ligulae 2–11 mm longae. Inflorescentiae 3.4–8.5 cm longae, spicae 4–5; bracteae infimae laminis 5–21 cm longis, 3.5–7 mm latis; spica terminalis omnino staminata, 1.5–3.5 cm longa, 3.5–6 mm lata, pedunculo 0.5–8.5 mm longo; spicae laterales 3–4, omnino pistillatae, 1.6–4.2 cm longae, 11–13 mm latae, floribus 35–210. Squamae pistillatae corporibus 2.5–3.6 mm longis, 1–1.8 mm latis, acutis vel truncatis, aristatae, aristis 0.3–3.1 (–4.1) mm longis. Perigynia (4.9–) 5.3–6.7 mm longa, (1.5–) 1.8–2.5 mm lata, inflata, glabra, corporibus biconvexis vel suborbiculatis, in rostrum (1.5–) 1.8–2.2 (–2.4) mm longum contracta. Achenia 2.2–2.6 mm longa, 0.6–0.9 mm lata, trigona. Styli persistentes; stigmata 3. Antherae 3, ca 2–2.1 mm longae.

Loosely caespitose with stout woody rhizomes, rhizomes 0.3–0.5 mm wide; fertile culms 20–50 cm tall, erect or somewhat curved, exceeded by the upper leaves, trigonous, prominently angled, smooth or slightly scabrous-angled above, 1.2–1.8 mm wide (below the inflorescence); bladeless basal sheaths dark purple, fibrillous with age. Leaves 3–8, mostly grouped at the base of the plant and a few along the culms; blades 9–32 cm long, (4–) 5–9 mm wide, flat, canaliculate on the midrib, the margins and midrib antrorsely scabrous distally; leaf sheaths somewhat loosely enveloping the culms, glabrous, very slightly septate-nodulose dorsally, whitish or reddish tinged, thin but scarcely or not hyaline ventrally, often prolonged at the apex, sometimes purple-dotted along the inner band; ligules 2–11 mm long, rounded to acute, the free portion whitish to red-brownish, 0.3–0.8 mm wide. Inflorescences 3.4–8.5 cm long, 3.5–5 cm wide, with 4–5 spikes, the terminal staminate, the lateral 3–4 pistillate; pistillate spikes approximate or the lowermost separate, erect to erect-spreading, sessile or the lowermost on a peduncle up to 2 cm long; lowermost 1–3 bracts foliaceous, 5–21 cm long, 3.5–7 mm wide, antrorsely scabrous along the margins and midvein, sheathless or short sheathing, the upper bracts setaceous, reduced. Staminate spike 1.5–3.5 cm long, 3.5–6 mm wide, on a peduncle 0.5–8.5 mm long. Pistillate spikes 1.6–4.2 cm long, 11–13 mm wide, cylindrical, densely flowered with about 35–210 ascending-spreading perigynia in many rows. Staminate scales 4.9–7.6 mm long, the body 4.2–5.4 mm long, 1–2.1 mm wide, oblong-lanceolate, reddish to dark purple with a narrow, paler center, the



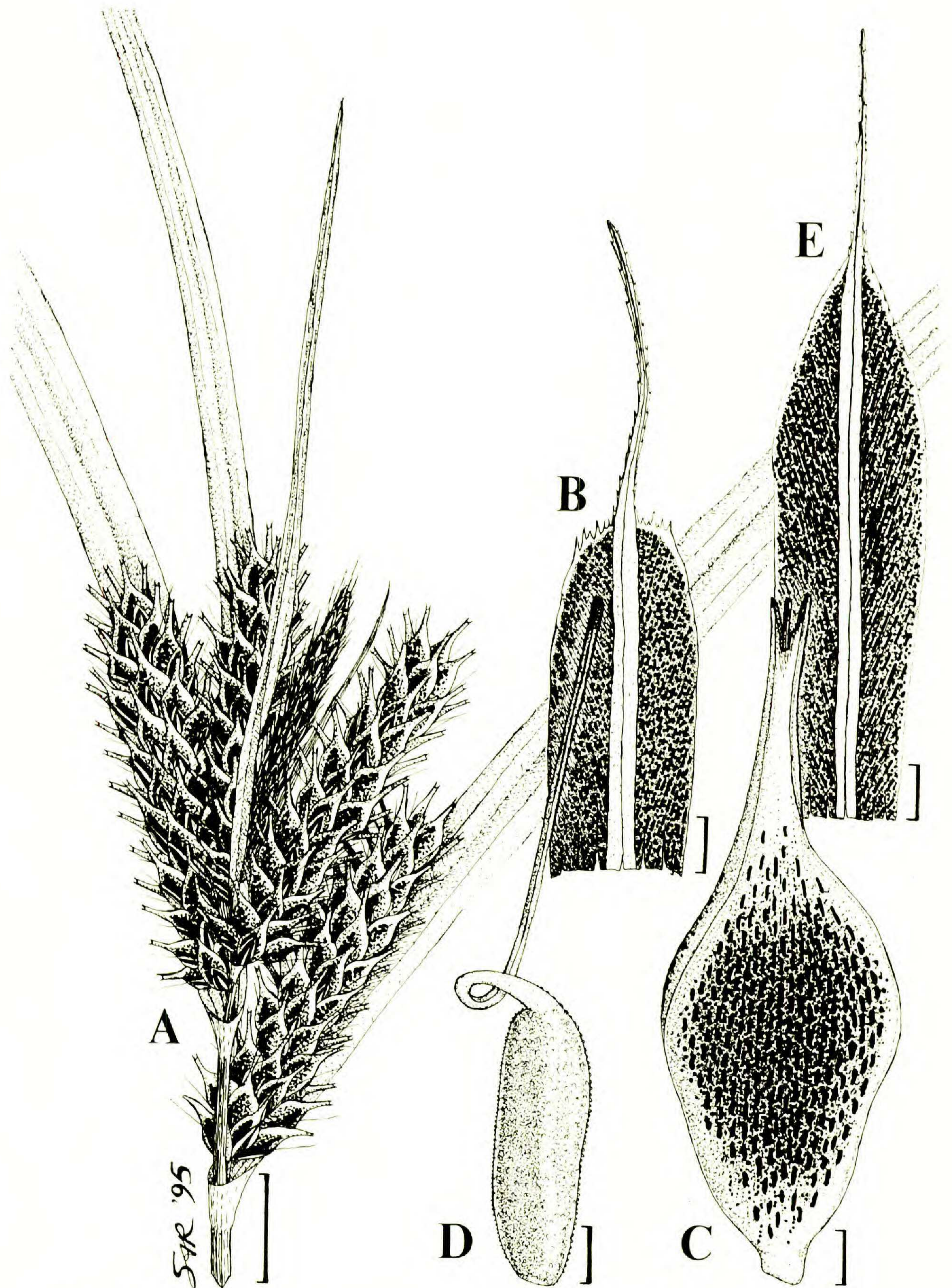


FIG. 4. *Carex luridiformis*. A. Inflorescence. B. Pistillate scale. C. Perigynium. D. Achene. E. Staminate scale. (Scale: A, bar = 1 cm; B-E, bar = 0.5 mm.) Drawn by Susan A. Reznicek from Pennell 1931 (NY).

midrib prolonged into a rough awn (0-) 0.3-2.7 mm long, the awn mostly 0.1-0.6 times as long as the body. Pistillate scales 4.2-6 mm long, the body 2.5-3.6 mm long, 1-1.8 mm wide, ovate to oblong, dark purple with a green or stramineous center, acute to truncate, the midrib prolonged into a rough awn 0.3-3.1 (-4.1) mm long, the awns mostly 0.3-1.1 times as long as the body, the body of scales



usually covering less than 2/3 of the length of the body of perigynia. Perigynia (4.9–) 5.3–6.7 mm long, (1.5–) 1.8–2.5 mm wide, inflated, biconvex to suborbicular in cross section, membranaceous, glabrous, purple-black or stramineous and densely purple-black dotted, shiny, very faintly few-nerved, short-pedicellate, gradually or abruptly contracted into a beak; beaks (1.5–) 1.8–2.2 (–2.4) mm long, 0.4–0.5 times as long as the body, smooth, cylindrical, green or stramineous, bidentate at the apex with slender, stiff, erect teeth 0.3–0.6 mm long. Achenes 2.2–2.6 mm long, 0.6–0.9 mm wide, trigonous with convex sides above, often slightly constricted at the middle on one side, oblong, papillose, pale brown, sessile or stipitate, at the apex tapering and continuous with the persistent, contorted or abruptly bent style; stigmas 3. Anthers 3, ca 2–2.1 mm long.

*Carex luridiformis* is known from Colombia (Fig. 6), in marshes between 2700 and 3400 m. Fruiting is from July to November.

ADDITIONAL SPECIMENS EXAMINED. **Colombia.** BOYACÁ: Páramo de Guantiva near km marker 230 on road between Belén and Susacón, *Langenheim 3646* (MICH, NY, US).—CUNDINAMARCA: Páramo de Choachi, near Bogotá, moist mossy paramo near Laguna Verjón, *Pennell 2266* (NY); Bogotá, Cruz Verde, *Müller 3831* (MICH); al sur de Usme, entre La Regadera y El Hato, *Idrobo et al. 381* (GH).

*Carex luridiformis* is a striking and distinctive species with wide, often purple-black spikes. Mackenzie died without describing this species, although he recognized it and annotated herbarium material with this name. Subsequently, other specimens of this distinctive species were so named by others based on comparison with the sheets identified by Mackenzie. It seems only fitting finally to publish Mackenzie's name after it has had so much use. The epithet refers to this species having the aspect of *C. lurida*.

Although Kükenthal (1909) placed it under *Carex acutata*, it may be that Boott's (1867) illustration (plate 514) of his mysterious *C. purpurea* (a nomen nudum) was based on a specimen of *C. luridiformis*.

***Carex lurida*** Wahlenb., Kongl. Vetensk. Acad. Nya Handl. 24: 153. 1803.—TYPE: America septentrionali, *Hultgren s.n.* (type not traced). Fig. 5.

Cespitose, culms (15–) 25–95 (–110) cm tall, erect, exceeded by the leaves, sharply trigonous with concave sides, the prominent angles often scabrous distally, 0.7–2.1 mm wide immediately below the inflorescence; bladeless basal sheaths reddish purple, usually slightly fibrillous with age; leaves 3–6, mostly on the lower half of the culm, blades 7–50 (–65) cm long, 2.4–11.5 (–13) mm wide, the widest (4–) 4.5–13 mm wide, flat, the margins and midrib antrorsely scabrous distally, also sometimes the adaxial surface just above the ligule; leaf sheaths glabrous, green, slightly septate-nodulose, the inner band whitish hyaline to pale brown, sometimes finely brown-dotted, thin and easily ruptured at the concave apex. Ligules (2–) 2.6–16 (–21) mm long, acute, the free portion whitish hyaline to pale brown 0.2–0.6 mm long. Inflorescences 2.7–18 cm long, up to 8 cm wide, with 2–5 spikes, the terminal staminate, the lateral 1–3 (–4) pistillate, pistillate spikes approximate or the lowermost slightly separate, ascending to spreading, nearly sessile or the lowermost on a peduncle up to 3.1 cm long; lowermost 1–3 bracts foliaceous, the lowermost 9–45 cm long, 2.2–8 mm wide, the margins and midrib antrorsely scabrous distally, sheathless (very rarely with a short sheath up to 1.8 cm long), the uppermost bracts strongly reduced. Staminate spike 1.3–7.8 cm long, 1.6–4 mm wide, peduncle 0.7–1.6 (–3.5) cm long. Pistillate spikes 1.2–6.3 cm long, (12–)



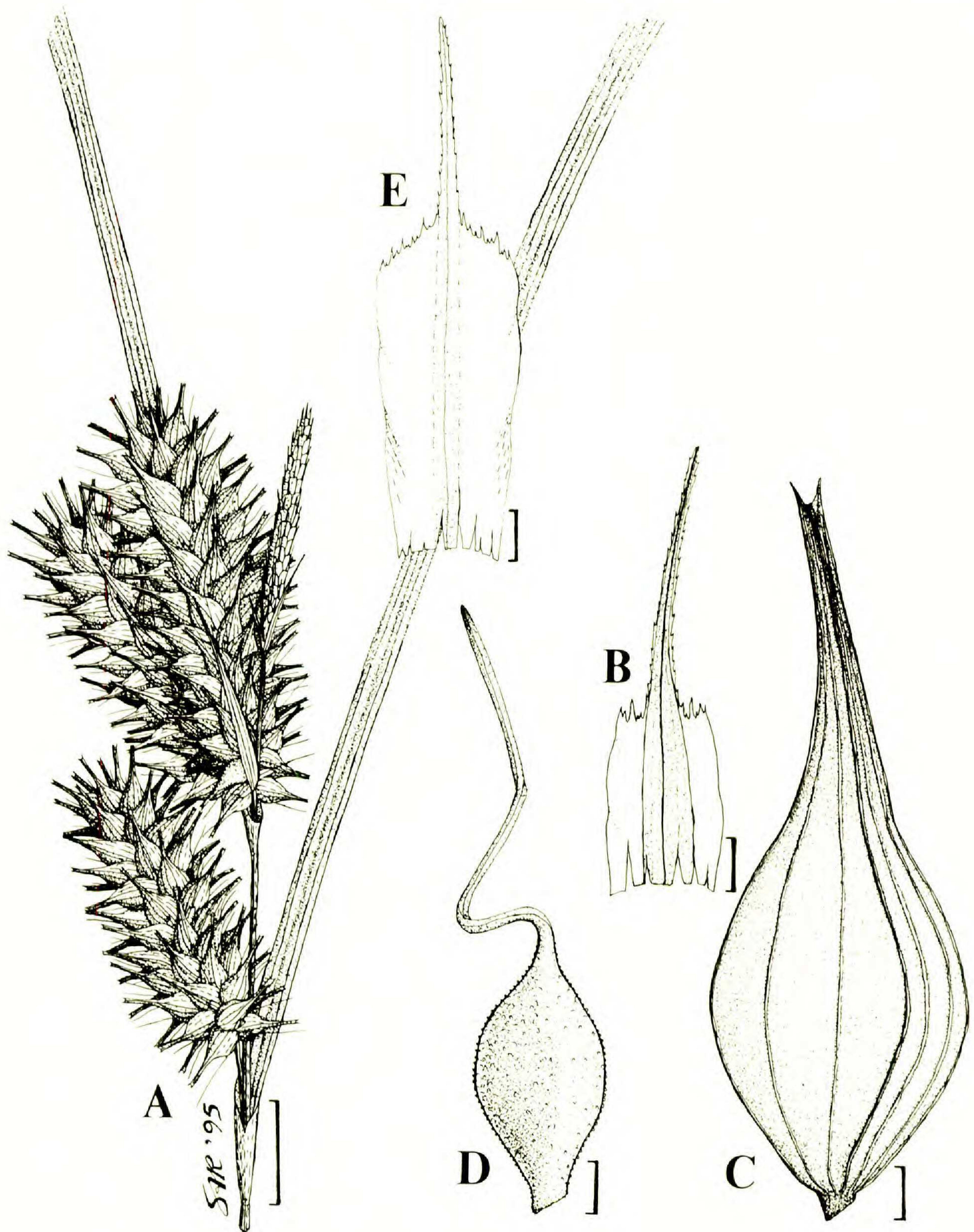


FIG. 5. *Carex lurida*. A. Inflorescence. B. Pistillate scale. C. Perigynium. D. Achene. E. Staminate scale. (Scale: A, bar = 1 cm; B-E, bar = 0.5 mm.) Drawn by Susan A. Reznicek from *Pringle 8160* (MICH).

14–22 mm wide, short cylindrical (1–) 1.5–3.5 (–4.5) times as long as wide, densely flowered with ca 18–230 ascending to spreading perigynia in many rows. Staminate scales 4.4–13.4 mm long, the body 2.7–4.8 mm long, 0.9–1.5 mm wide, narrowly lanceolate to narrowly elliptic, whitish hyaline to pale brown, glabrous to scabrous-hispidulous adaxially, truncate to retuse, the midrib prolonged into a rough awn 0.6–10.8 mm long, the awn 0.4–1.9 times as long as the body. Pistillate scales 3.4–11.2 mm long, the body 1.7–5.2 mm long, 0.5–1.1 mm wide, narrowly oblong, whitish hyaline to pale stramineous with a 3-nerved green center, glabrous, usually truncate to retuse, the midrib prolonged into a rough awn 1.6–10.2



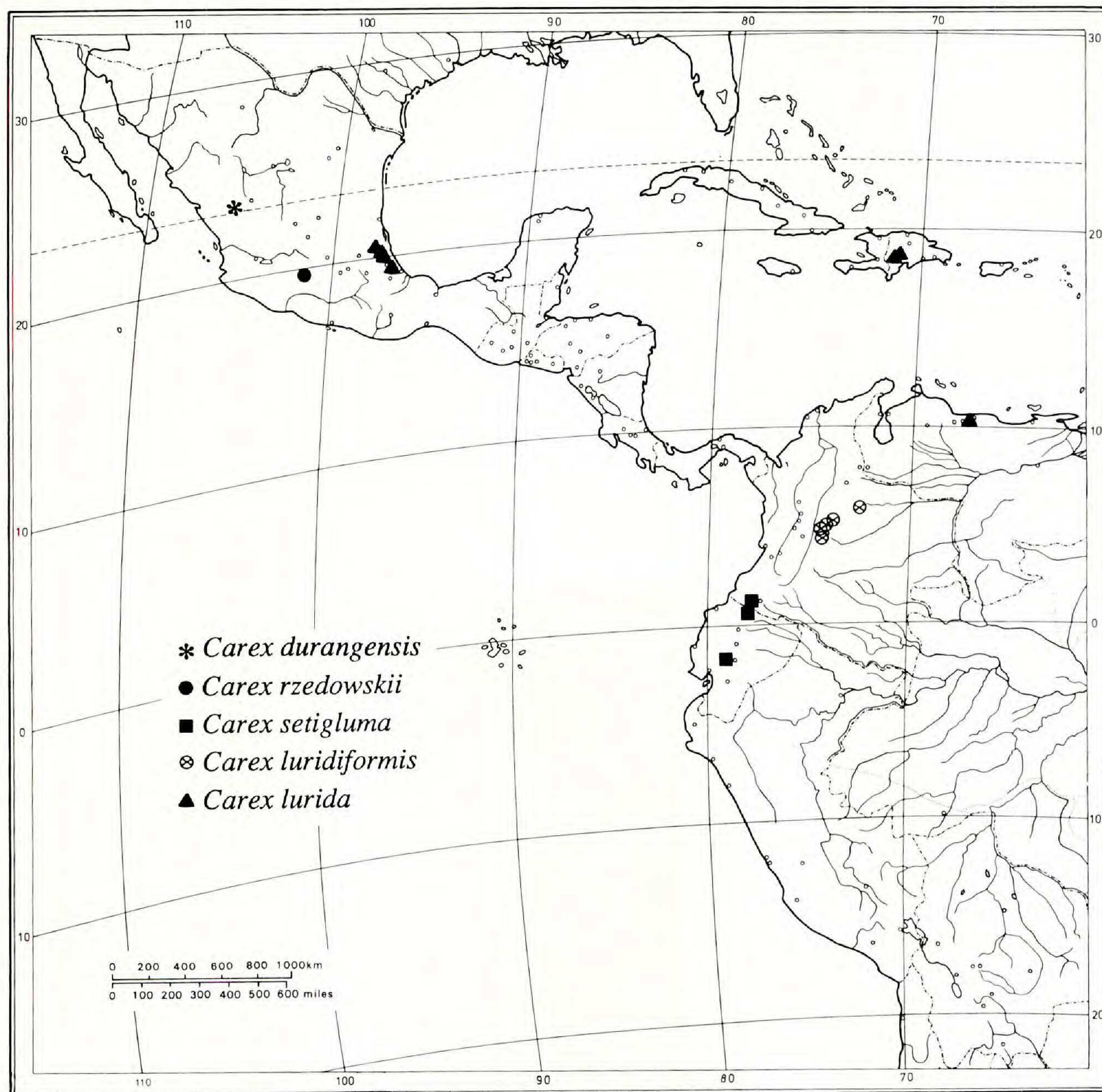


FIG. 6. Distribution of *Carex rzedowskii*, *C. durangensis*, *C. setigluma*, *C. luridiformis*, and *C. lurida* in the neotropics.

mm long, the awn 0.6–3.5 (–6) times as long as the body, the body of the scales mostly less than half the length of the perigynium body. Perigynia (6–) 6.5–10.8 mm long, (1.8–) 2–3.5 (–4.2) mm wide, inflated, more or less suborbicular in cross section, membranaceous, glabrous, stramineous to olivaceous, lustrous, 7–12-nerved, short-stipitate, contracted into a beak; beaks (2.5–) 2.8–5.9 mm long, 0.7–0.9 times as long as the body, smooth, long-tapering and slender, stramineous to olivaceous, bidentate at the apex with slender, stiff, straight teeth 0.2–0.8 mm long. Achenes 1.8–2.8 mm long, 1–1.5 mm wide, trigonous with flat to concave, elliptic to rhombic or somewhat obovate sides, papillose, pale brown, short-stipitate, tapering into the persistent, contorted style; stigmas 3. Anthers 3, 1.7–2.9 mm long.

In the neotropics, known from the Dominican Republic, Mexico, and Venezuela (Fig. 6), between 1300 and 2200 m in swampy areas and on riverbanks. Fruiting is from April to October.

Mackenzie (1935: 462) noted that *C. lurida* was erroneously reported from Central and South America. It had been reported by Kükenthal (1909) based on collections from Venezuela (*Fendler 1579*) and Ecuador (*Jameson 750*). *Fendler*



1579 is correctly determined as *C. lurida*. We have not seen *Jameson 750*. Knuth (1926) also reported *C. lurida*, based on *Fendler 1579*, from Venezuela. The citation and illustration of *C. lurida* from Colombia (Mora-Osejo 1966) is based on *C. luridiformis*.

The description of *Carex lurida* presented here is drawn from specimens from throughout the range of the species (Nova Scotia to eastern Minnesota, south to Florida and east-central Texas). The few neotropical specimens fall well within the variation exhibited by the temperate plants. Mackenzie (1935) gives the synonymy of this species.

ADDITIONAL SPECIMENS EXAMINED. **Dominican Republic.** SAN JUAN: Sabana Nueva, Cordillera Central N of Rio Arriba del Norte, *Howard & Howard 9028* (MICH, NY, US); El Valle, headwaters of Bao river, Cordillera Central, *Liogier 12770* (NY); Cordillera Central, Parque Nacional Bermudez, en el Valle de Bao, *Zanoni & García 41731* (NY). **Mexico.** HIDALGO: Distrito Zacualtipán, ca. 3 mi from Zacualtipán on road to Tianguistengo, *Moore 3329* (BH, GH).—VERACRUZ: carretera al sur de Huayacocotla, 17 km del borde con Hidalgo, *Fay & Calzada 880* (F, IEB); near Jalapa, *Pringle 8160* (F, GH, MEXU, MICH, MO, MSC, NY, PH, SD, US); Rancho Nuevo, Mpio. Chiconquiaco, *Ventura 8167* (IEB, NY); Rancho Nuevo, Mpio. Chiconquiaco, *Ventura 11250* (IEB, VDB). **Venezuela.** [ARAGUA]: Prope Coloniam Tovar, *Fendler 1579* (GH, PH).

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